

WHAT IS CLAIMED IS:

1. A color cathode ray tube comprising:

a panel having a phosphor screen on an inner surface thereof;

5 an electron gun which emits electron beams toward the phosphor screen; and

a substantially rectangular shadow mask located opposite the phosphor screen inside the panel and having a major axis and a minor axis extending at right angles to each other and to a tube axis,

10 the shadow mask including a main mask opposed substantially to the whole surface of the phosphor screen and having a substantially rectangular effective portion formed with a number of electron beam passage apertures and a belt-shaped auxiliary mask fixed to a region containing the minor axis of the effective portion of the main mask, having a number of electron beam passage apertures corresponding individually to the electron beam passage apertures of the main mask,

20 and elongated along the minor axis, each of the electron beam passage apertures of the auxiliary mask being a communicating hole formed of a substantially rectangular smaller hole opening in that surface of the auxiliary mask which is in contact with the main mask and a substantially rectangular larger hole opening in the opposite surface of the auxiliary mask, and

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the smaller and larger holes of each electron beam passage aperture of the auxiliary mask individually having central axes extending coaxially with each other and substantially at right angles to the surface of the auxiliary mask in the direction of the major axis.

2. A color cathode ray tube according to claim 1, wherein the electron beam passage apertures of the main mask and the auxiliary mask are arranged at pitches of about 0.4 mm to 0.6 mm in the direction of the major axis.

3. A color cathode ray tube according to claim 1, wherein that region of the auxiliary mask which is situated between the electron beam passage apertures adjoining one another in the direction of the major axis is welded to the main mask.

4. A color cathode ray tube according to claim 2, wherein that region of the auxiliary mask which is situated between the electron beam passage apertures adjoining one another in the direction of the major axis is welded to the main mask.

5. A color cathode ray tube comprising:
a panel having a phosphor screen on an inner surface thereof;
an electron gun which emits electron beams toward the phosphor screen; and
a substantially rectangular shadow mask located opposite the phosphor screen inside the panel and

having a major axis and a minor axis extending at right angles to each other and to a tube axis,

the shadow mask including a main mask opposed substantially to the whole surface of the phosphor screen and having a substantially rectangular effective portion formed with a number of electron beam passage apertures and a belt-shaped auxiliary mask fixed to a region containing the minor axis of the effective portion of the main mask, having a number of electron beam passage apertures corresponding individually to the electron beam passage apertures of the main mask, and elongated along the minor axis,

each of the electron beam passage apertures of the auxiliary mask being a communicating hole formed of a substantially rectangular smaller hole opening in that surface of the auxiliary mask which is in contact with the main mask and a substantially rectangular larger hole opening in the opposite surface of the auxiliary mask,

the electron beam passage aperture of the auxiliary mask having relationships:

$$0.7 \leq D_a/D_b \text{ and } D_a < D_b,$$

where D_a and D_b are the diameter of the smaller hole in the direction of the major axis and the diameter of the larger hole in the direction of the major axis, respectively, and

the smaller and larger holes of each electron beam

passage aperture of the auxiliary mask individually having central axes extending coaxially with each other and substantially at right angles to the surface of the auxiliary mask in the direction of the major axis.

5 6. A color cathode ray tube according to claim 5, wherein the electron beam passage apertures of the main mask and the auxiliary mask are arranged at pitches of about 0.4 mm to 0.6 mm in the direction of the major axis.

10 7. A color cathode ray tube according to claim 6, wherein that region of the auxiliary mask which is situated between the electron beam passage apertures adjoining one another in the direction of the major axis is welded to the main mask.

15 8. A color cathode ray tube according to claim 5, wherein that region of the auxiliary mask which is situated between the electron beam passage apertures adjoining one another in the direction of the major axis is welded to the main mask.